



## The Effectiveness of Individual Self-Efficacy Training On Reducing Depression in Students with Math-Learning Disorder (MLD)

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### ABSTRACT

**Introduction:** Learning disabilities include a great range of educational setbacks. One of the subjects many students have difficulty with is mathematics. Mood swings are a part of every human's nature. Nevertheless, learning disability, especially in mathematics, has a negative impact on individuals' moods. One of the factors affecting psychological health, especially in students during their studies, is self-efficacy. Purpose: The present study was conducted to determine the effectiveness of individual self-efficacy training on decreasing depression in students with MLD.

**Method:** Sampling was convenient sampling from students referring to the Center for Learning Disorders in Saravan where 20 students were selected based on the pre and post-test design. Dass-21 questionnaire was used in pre and post-test.

**Findings:** There was a significant difference after the intervention ( $p < 0.001$ ) between the scores in pre and post-test.

**Conclusion:** The results showed the effectiveness of self-efficacy training in reducing anxiety, stress and depression. Thus, one can state that these interventions lead to anxiety, stress and depression among students with MLD.

**Keywords:** Self-efficacy, Anxiety, Stress, Depression, MLD.

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### INTRODUCTION

Learning disabilities consist of a very wide range of educational problems. Children with learning disabilities are introduced as the ones incapacitated in one or more basic psychological processes such as comprehension, the use of spoken or written language, or mathematical skills. There is no doubt that one of the lessons that many students have problems with is a mathematics. As mathematics contains abstract concepts, its understanding requires a high level of rational development, and since many students, despite their physical growth and age, have not developed an abstract understanding, they often have problems understanding mathematical concepts (Latifi, 2009).

In case of reaching the goal of resolving the disorders in learning and thus increase in success and reduction in the past, one of the issues affected is self-efficacy. In Bandura's system, the efficiency of the individual (self-efficacy) is the feeling of competence, adequacy, and give and take. Self-efficacy increases by meeting and maintaining individual performance criteria, and failure to meet and maintain those criteria reduces self-efficacy. Self-efficacy is the firm belief of the individual in

his/her ability to successfully create the behaviors required for production of the desired outcomes, which also shows the individual's overall confidence in his ability to control environmental requirements (Moradi, 2011).

#### Problem Statement

Maybe no parts of the realm of children with special needs have been the subject of multidisciplinary studies as learning disabilities have created controversy. So far, various definitions of learning disabilities have been suggested, of which the definitions of the federal regulations (1977) can be cited. According to this definition, specific learning disorders are impediments in one or more basic psychological processes involved in understanding or application of spoken or written language. These disorders may show themselves in form of incomplete ability in listening, thinking, speaking, reading, and writing, spelling or doing mathematical calculations, partial perception of the brain, dyslexia, and transformational psychosis. Nevertheless, this does not include children whose learning difficulties are as a result of visual, auditory, or motor defaults or due to mental retardation or emotional distress or environmental, cultural or economic deprivation (Karimi, 2004). One of the areas of problem for students with learning disabilities is mathematics. Many students with mathematical learning disabilities face major problems in learning mathematics. Problems with mathematical learning start in

early ages in some children, but often show itself in elementary school, and continue to guidance and high school (Greston, 2005). Disorder in math is essentially the considerably low ability of a person in mathematics lower than expected, considering the calendar age, intelligence measured, and education appropriate with his age. The mathematical problem affects the academic achievement or everyday life activities requiring math skills, and if there is a sensory deficit, problems in mathematical ability usually add to the problems associated. According to the fourth edition of the Diagnostic and Statistical Manual (DSM, IV, R), these children have difficulty in four groups of linguistic, perceptual, intentional mathematics skills. Given that each student is unique, children with mathematical problems will have no coherent features. However, there are some features common in them, such as turbulence in spatial relationships, poor sense of body image, difficulty in perceptual-visual and motor-visual capabilities, weakness in concepts such as language and orientation, defects in memory and math anxiety, psychological problems such as depression, anxiety and stress related to understanding some complex concepts (Ahadi and Kakavand, 2008). Mood swings are part of the nature of every human being. However, learning disability, especially in mathematics, has a negative effect on the mood of individuals, often accompanied by inappropriate mood swings and unexpected changes (Farrell, 2011). Meanwhile, depression is more common among other psychological and mood reactions. Permanent sadness, disappointment towards the learning of some complex and spatial concepts, and depression can affect the quality of life of the affected person, and render the person helpless in solving many problems and concepts (Levinson, 2000).

Anxiety is another common symptom and in comparison with depression, few studies have been conducted on it. One of the main causes of anxiety in students with learning disabilities is the method of dealing with stress, including dealing with the disease itself (Farrell, 2011). Today stress is an integral part of our lives. It is estimated that 50 to 80 percent of the diseases are stress-driven (Ashrafi, 2007). One of the factors affecting psychological health, especially in students during their studies, is self-efficacy. Self-efficacy is often a sense of autonomy and skill in the environment. This sense is of great contribution to the quality of life and learning in the educational environment. Low levels of autonomy and self-esteem predict low quality of life (Murphy and Murphy, 2006). Within the scope of cognitive-social approach, Bandura (1997) defined self-efficacy beliefs as the level of trust a person has on his ability to perform certain activities or succeed in some functions. Based on the cognitive-social approach, one's perceptions of self-efficacy affects various areas of life such as goals, decisions, efforts to do a task, perseverance in confronting challenges, a positive or negative thinking pattern, and generally the behavior, thinking and feeling. High self-efficacy has been associated with strengthening the immune system, reducing the release of stress hormones and reducing vulnerability to respiratory infections. Bandura states that self-efficacy affects people's psychosocial function in various psychiatric conditions, such as depression, anxiety, substance abuse, and eating disorders (Peratt, 2010). According to researches, there is a reverse and significant relationship between self-efficacy and depression and anxiety (Morris,

2002). Thus, it seems that with increasing self-efficacy, thinking styles, information processing and dealing with problems in these individuals improve, and by improving self-efficacy behaviors, it reduces psychological problems, especially depression, anxiety and stress. Thus, according to the findings of the above studies, this study evaluates the effectiveness of individual self-efficacy training on some aspects of psychological problems such as depression, anxiety, and stress in students with MLD.

#### Objectives

- Determining the effectiveness of individual self-efficacy training on depression, anxiety and stress scores in students with MLD in the intervention position relative to the baseline
- Determining the scores of depression, anxiety and stress in students with MLD in follow-up position relative to baseline position

#### Hypotheses

1. Individual self-efficacy training has a positive effect on decreasing the rate of depression in students with MLD.
- 2- Individual self-efficacy training has a positive effect on decreasing the rate of anxiety in students with MLD.
3. Individual self-efficacy training has a positive effect on decreasing the rate of stress in students with MLD.

#### Importance of research

As today's children are the future owners of the community, their health and illness have significant effects on the health of the community tomorrow and future generations. The tremendous advances in technology and the pace of change in the world we live in make human pay more attention to education system and provide the conditions for students and learners to maximize their potential and make efforts to reach the educational goals designed and succeed; and if they encounter problems, they try to overcome obstacles (Moradi, 2011). If identifying problems and difficulties is the prerequisites of any treatment and remedy, learning disorders should be recognized and analyzed before, such as other issues of daily life, then be treated based on the causes (Moradi, 2011). In recent years, especially with the introduction of cognitive viewpoints and news, new ideas were presented on learning issues and inadequacies that in part reflect the importance of learning and how to apply cognitive skills and strategies in learning the lessons. In fact, students' differences are not in wake of inherent qualities and features, but in the way, they process their information. Thus, the present study was conducted to clarify the effect of teaching students through self-efficacy sessions to reduce stress anxiety and depression in students with MLD.

#### Method

This research used a multiple base line design among subjects. A multiple base line design involves the use of an intervention position in two or more base lines in a staged time model. The population was all students with MLD in educational centers affiliated to Saravan where 20 students with MLD in education of Saravan were selected by convenient sampling method.

#### Research tools

Depression, Anxiety and Stress Scale Dass-21

Depression, Anxiety and Stress Scales (DASS-21) was prepared by Lavibond and Lavibond in 1995. This scale has two forms. The main form has 42 items evaluating the psychological structure of depression, anxiety and stress by 14 different

phrases. Its short form has 21 items where each one of the 7 terms measures a psychological agent or structure. The subject should mark the intensity of the item presented in each article that he experienced during the last week. Each of the questions has a Likert scale between 0 and 3. Sub-scales of depression evaluate boredom, hopelessness, devaluing life, self-immolation, lack of interest and participation, unpleasantness and stagnation. The anxiety subscale has phrases that assess physiological distress, fears, and situational anxiety. The subscale of stress evaluates points such as difficulty in achieving relaxation, nervous tension, irritability, and restlessness. Lovibond and Lovibond (1995) showed that test retest reliability for sub-scales was 0.71 for depression, 0.81 for stress, and 0.79 for anxiety. For scale validity, the correlation coefficients with Beck anxiety and depression questionnaire were 0.71 and 0.74 respectively. Sahebi, Asghari and Sadat Salari (2005) standardized the short form of DASS-21 for the Iranian population. This standardization was done on 1070 students and male and female students. The reliability of this scale was assessed through internal consistency and its validity by using factor analysis and criterion validity with simultaneous implementation of Beck Depression Inventory, Zung anxiety and Perceived Stress. Overall, obtained reliability and validity coefficients were very satisfactory and were significant at  $P < 0.001$ . The correlation between depression subscale of DASS and Beck depression test was 0.70, DASS anxiety subscale with Zung SAS was 0.67, and stress subscale of DASS and perceived anxiety test was 0.49. The internal consistency of DASS scales was calculated using Cronbach's alpha and the results were depression 0.77, anxiety 0.79, and stress 0.78. The process of implementing self-efficacy training is as follows:

Summary of the points put forward during 12 sessions of individual self-efficacy training: First session was understanding and establishing a relationship with the subject, defining and expressing the concept of self-efficacy and expressing the characteristics of self-efficacious people. Second

session was teaching technique for muscle relaxation, performing role-playing technique in dealing with stress, and delivering relaxation tasks. Third session was devoted to examining the outcomes of the session before, teaching social communication skills such as disarming, empathy, caressing, etc. to enhance self-esteem. Fourth session was for introducing the role of behavior in self-efficacy and presentation of methods of improving mood and emotional state like the method of stopping thought and so on. The fifth session was examining the affective factors in self-efficacy such as thought, affection and action and examining the types of thinking (rational and unreasonable). Sixth session was for presentation of strategies to deal with irrational thoughts and replacing rational thoughts. Seventh session was a role-play on the concepts of previous meetings, introducing three ways of dealing with others (aggression, dullness, and assertiveness), and the presentation of tool-based communication paths. Eighth session was introducing inefficient and effective strategies to deal with stressful situations (familiar with inefficient avoidance strategies, consumption, high-risk behaviors, etc.). Ninth session was for presentation of effective solutions for coping stress (problem-oriented coping and emotional-focused coping) and offering the task of identifying the dominant strategies in the individual. Tenth session was devoted to teaching effective responses in stressful situations based on the table set by the subject with the help of role-play. The eleventh session was training mental imaging and Mantra meditation to succeed. Twelfth session was performing mental imagery in the presence of the investigator and discussing the results of past sessions (Agha Mohammadi *et al*, 2011). Data is then analyzed using SPSS and t test was used to test the hypotheses and to compare the mean of correlated samples.

**Findings**

The first hypothesis: Individual self-efficacy training has a positive effect on decreasing the rate of depression in students with MLD. T-test was used to evaluate the effectiveness of individual self-efficacy training on decreasing depression in students with MLD, whose results are presented in Table 1:

**Table 1:** Summary of t-test results for comparison of depression in pre-test and post-test

| Test      | Frequency | Mean | SD   | DF | t    | Sig.  |
|-----------|-----------|------|------|----|------|-------|
| Pre-test  | 20        | 9.05 | 3.02 | 19 | 4.48 | 0.001 |
| Post-test |           | 4.80 | 2.44 |    |      |       |

Table 1 shows that the pre-test and post-test of the depression in the experimental group have a significant difference, so that the mean of depression in the post-test has significantly decreased.

Second hypothesis: Individual self-efficacy training has a

positive effect on decreasing the rate of anxiety in students with MLD. T-test was used to evaluate the effectiveness of individual self-efficacy training on reducing the anxiety level in students with math learning disorder, whose results are presented in Table 2.

**Table 2:** Summary of t-test results for comparison of anxiety in pre-test and post-test

| Test | Test | Frequency | Mean | SD | DF | t |
|------|------|-----------|------|----|----|---|
|------|------|-----------|------|----|----|---|

|           |    |      |      |    |      |       |
|-----------|----|------|------|----|------|-------|
| Pre-test  |    | 9.85 | 3.42 |    |      |       |
|           | 20 |      |      | 19 | 5.55 | 0.001 |
| Post-test |    | 5.30 | 1.98 |    |      |       |

Table 2 shows that the pre-test and post-test of the anxiety in the experimental group have a significant difference, so that the mean of anxiety in the post-test has significantly decreased. Hypothesis 3: Individual self-efficacy training has a positive

effect on decreasing the rate of stress in students with MLD. T-test was used to evaluate the effectiveness of individual self-efficacy training on reducing the stress level in students with math learning disorder, whose results are presented in Table 3.

**Table 2:** Summary of t-test results for comparison of stress in pre-test and post-test

| Test      | Test | Frequency | Mean | SD | DF   | t     |
|-----------|------|-----------|------|----|------|-------|
| Pre-test  | 20   | 9.85      | 2.96 | 19 | 4.84 | 0.001 |
| Post-test |      | 4.80      | 3.02 |    |      |       |

Table 3 shows that the pre-test and post-test of the stress in the experimental group have a significant difference, so that the mean of stress in the post-test has significantly decreased.

#### Discussion and conclusion

Individual self-efficacy training has a positive effect on decreasing the rate of depression in students with MLD. Depression mean in the post-test significantly decreased. The results of this study are in line with Tahmatsian and Anari (2009), Babapoor Kheiraldin (2010), and Boroumand et al. (2012) all of which confirm that self-efficacy has a significant relationship with depression and low self-efficacy is predictive of depression. Individual self-efficacy training has a positive effect on decreasing the anxiety level of students with MLD. The mean of anxiety in the post-test significantly decreased. The results of this study are in line with the studies by Ahmadi Burang (2009), Agajani et al. (2011) and Bakhtiarpour (2011), all show that self-efficacy, anxiety has a significant relationship, and lower self-efficacy is the predictor of anxiety. Individual self-efficacy training has a positive effect on reducing stress among students with MLD. The mean stress in post-test significantly decreased. The results of this study are consistent with the results of the studies by Ariapouran and Karami (2009), Massoudnia (2007) and Khoshnavisan et al. (2011), all of which suggest a significant relationship between self-efficacy and stress.

Self-efficacy training has decreased the anxiety, stress and depression in the subjects as indicated in the results. In the results of this study, people with MLD were examined. After

learning the self-efficacy training, they were more comfortable at accepting learning to resolve their learning disorder.

Given the self-efficacy training framework along the components included in the training program, positive changes in the variables of this study were not surprising.

Cognitive, emotional development of children and adolescents limits the application of various therapeutic methods. However, cognitive-behavioral programs made through the learning of adaptive behaviors are effective in the cognitive and behavioral structures of children and adolescents.

Illogical beliefs such as blaming self and others, being shy among the age group, low social performance, fatigue and so on were repeatedly observed in subjects during training sessions. Due to the deprivations of the adolescent covered by that are covered by Welfare Organization, intervention in their psychological well-being was highly effective.

After each session and training each educational component, the subjects showed more ability to discuss and comment on themselves and others, more willingness to continue their studies, readiness and ability to attend classes of sports, arts, and areas of interest (in other words, increased readiness in community and collective activities). Moreover, the outcomes included the ability to plan long-term and short-term goals to achieve objectives, declaring greater sense of happiness and transferring their happiness to others, the ability to transfer what they had learnt in the eighth session. It has been effective for them, their friends, and families in the ability to recognize

and appreciate their emotions, the ability to identify effective strategies to deal with situations that were difficult for them (for example, expressing concern about attendance, and the inability to respond and worrying about doing the desired activities), increasing physical activity, as thus improving the physical condition, announcing optimism about those around and what is happening around it. According to the results and what was observed in the subjects during 12 sessions, one can conclude that self-efficacy training has an effect on stress, anxiety and depression.

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